

CALIFORNIA ENERGY COMMISSION

1516 Ninth Street, MS-29
Sacramento, California 95814

Web Site: www.energy.ca.gov



October 22, 1999

Members of the Senate Energy, Utilities and Communications Committee
Members of the Senate Budget and Fiscal Review Committee
Members of the Senate Appropriations Committee
Members of the Assembly Utilities and Commerce Committee
Members of the Assembly Budget Committee
Members of the Assembly Appropriations Committee
California State Capitol Building
Sacramento, California 95814

**Re: California Energy Commission's Quarterly Report
Concerning the Public Interest Energy Research Program**

Dear Members:

In accordance with Public Resources Code Section 25620.5(h), the California Energy Commission hereby transmits its Quarterly Report regarding the Public Interest Energy Research (PIER) Program, for the period July 1 through September 30, 1999. The enclosed report provides the required evaluation of the progress and a status of the PIER Program's implementation for this quarter.

To date, the Energy Commission has made substantial progress in meeting the goals of the PIER Program, as demonstrated by the early results of PIER-funded projects that will help improve the quality of life for California citizens (see enclosed report for descriptions of project results). Should you have questions or comments concerning this report, please feel free to contact Traci Stevens, Director of Governmental Affairs, at 654-4942.

Respectfully submitted,

DAVID A. ROHY, Ph.D.

Vice Chair and Presiding Member
Research, Development and
Demonstration Committee

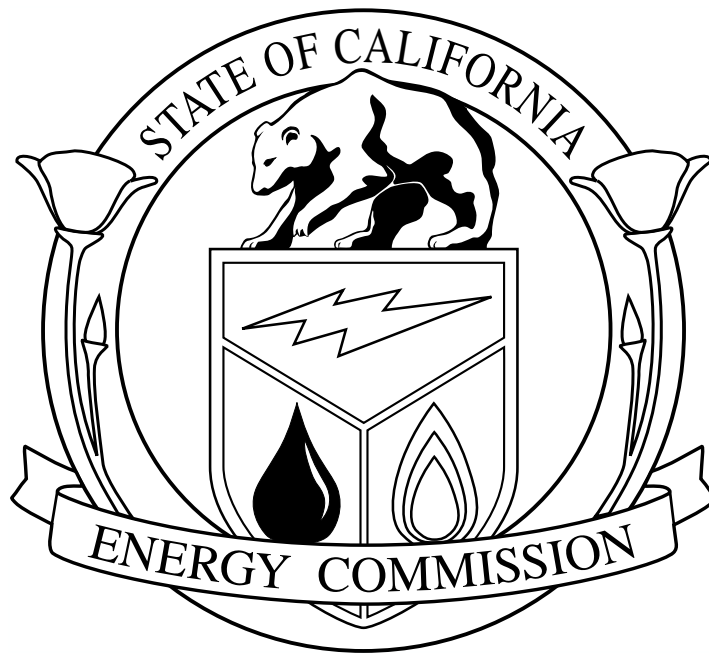
ROBERT A. LAURIE

Commissioner and Associate Member
Research, Development and
Demonstration Committee

Enclosure

cc: Legislative Analyst's Office

**California Energy Commission's Quarterly Report
Concerning the Public Interest Energy Research Program
(July 1 through September 30, 1999)**



California Energy Commission
Attn: Governmental Affairs Office
1516 9th Street, MS-30
Sacramento, California 95814
(916) 654-4942

California Energy Commission's Quarterly Report Concerning the Public Interest Energy Research Program (July 1 through September 30, 1999)

In accordance with Public Resources Code (PRC) Section 25620.5(h), this document hereby constitutes the California Energy Commission's Quarterly Report for the Public Interest Energy Research (PIER) Program, covering the period from July 1 through September 30, 1999. This report provides the required evaluation of the progress and a status of the PIER Program's implementation for this past quarter. It also provides input for the Energy Commission's more detailed Annual Report Concerning the Public Interest Energy Research Program required pursuant to PRC Section 25620.8.

I. SUMMARY STATUS OF THE PIER PROGRAM

As specified in PRC Section 25620, the primary mission of the PIER Program is to improve the quality of life of this state's citizens . . . [by funding] public interest energy research, development and demonstration [RD&D] projects that are not adequately provided for by competitive and regulated energy markets. The funds for this program, totaling approximately \$61.8 million annually, come from the electricity ratepayers of specified investor-owned utilities and are held in the PIER Program Trust Fund Account.

During the third quarter of 1999, the Energy Commission developed and managed contracts for 86 PIER projects and two specific RD&D memberships that received approximately \$69 million in PIER funding awards from the Energy Commission during 1998 and 1999. In addition, the Energy Commission released a programmatic solicitation in the Building End Use Efficiency program area. The Energy Commission also approved a competitive negotiation solicitation in the Renewable Generation program area, as well as a \$1.8 million inter-agency agreement (with the University of California, Davis) concerning energy efficiency in the agricultural industry.

During the third quarter, the Energy Commission finalized plans for the first major PIER Technology Symposium that will take place in San Diego, California, on October 25-27, 1999.

Further details concerning the Energy Commission's PIER Program activities for the third quarter are provided below.

II. PROJECT RESULTS FROM COMPETITIVE SOLICITATIONS

In 1998, the Energy Commission successfully completed three competitive solicitations that provided approximately \$49 million in PIER funds for 83 projects in five identified subject areas. The subject areas include renewable generation, environmentally preferred advanced generation, end-use energy efficiency, energy-related environmental research, and strategic energy research.

During the third quarter of 1999, the 38 PIER-funded Transition projects were scheduled to be completed. As is typical of research, work on some of these projects took longer than planned. For 27 projects, the time period was extended for one quarter. For one of the projects, it was necessary to extend the time period for one more year. The Energy Commission focused this quarter's effort on completing 11 of Edison Technology Solutions' transition projects because that company will no longer be doing contract research as of September 30, 1999.

As of the third quarter of 1999, 18 of 19 First General Solicitation projects have fully executed contracts, and one contract (with Aero Vironment, Inc.) was cancelled. The duration of these contracts is June 24, 1998, to March 31, 2002. In addition, 20 of the 24 projects from the Second General Solicitation have fully executed contracts. The remaining four contracts with Lawrence Berkeley National Laboratory are on hold pending final agreements with the Department of Energy. The duration of these contracts ranges from October 14, 1998, to March 31, 2004.

III. PIER MEMBERSHIP STATUS REPORT

A. Electric Power Research Institute Membership

In 1998, the Energy Commission provided \$1.536 million in PIER funds for a one-year pilot membership (1999) with the Electric Power Research Institute (EPRI), a national nonprofit research organization. In June 1999, the Energy Commission approved a contract amendment to augment the existing contract for the EPRI membership by \$11,758,500. This amendment added 23 additional research target areas for the years 1999 and 2000, and extended the term of the original seven target areas through the year 2000.

This funding allows the Energy Commission to participate in guiding national RD&D activities in specified areas and will help to ensure that California continues to receive the benefits of these nationally funded electricity RD&D efforts. Through the EPRI membership, the PIER Program conducts California-specific electricity—related research in several target areas.

During the third quarter, several PIER-funded EPRI research projects were initiated. These projects and their proposed outcomes will be outlined in detail in the upcoming 1999 Annual PIER Report. The following is an example of one of the EPRI research projects:

Renewable Technology Options and Green Power (Research Target 66)

As a result of technology advances, dropping prices, and customer enthusiasm, renewable energy is becoming a bigger part of our electricity mix. Even with technological advances, however, renewable energy still faces genuine barriers. Standardized technology and control protocols, more efficient operating strategies, and broader definitions of the true economic and environmental benefits of renewable energy are still required. Membership in the EPRI Renewable Energy Target includes collaborative research in biomass, wind power and photovoltaics (PV). Specifically, EPRI will manage California's wind energy forecasting project and will broker other collaborative projects with utilities, the Department of Energy, and others.

EPRI will deliver results in areas including biomass co-firing with natural gas, wind power, a renewable energy technical assessment guide, and PV interconnection. This target also provides information on renewable technology performance and costs, analyzes the energy and non-energy benefits of deploying renewable technologies, and offers an inside look at the working experiences of companies around the world. Challenges, best practices, and solutions for application of renewable energy will be provided.

B. Gas Research Institute Membership

During the third quarter of 1999, the Energy Commission's \$365,100, 18-month membership with the Gas Research Institute (GRI) began. This membership will allow the Energy Commission to participate in guiding R&D activities in five specific program areas: advanced fuel cells, distributed generation, industrial waste processing, highly efficient internal combustion, and commercial cooling and heating pump applications. During this quarter, Energy Commission staff attended a joint DOE/EPRI/GRI Review Conference on Fuel Cell Technologies in Chicago. The GRI's initial quarterly progress report is due to the Energy Commission on October 15, 1999.

IV. RECENT PIER FUNDING EFFORTS AND RESULTS

A. PIER Program Area Funding Efforts

(1) Building Energy Efficiency

During the third quarter, the Buildings Energy Efficiency program area released a programmatic solicitation as planned on July 13, 1999. The Energy Commission plans to award approximately \$6 million for the first year of the proposed program through this competitive programmatic solicitation. This programmatic funding mechanism is intended to provide program level support for interrelated public interest RD&D activities and will require individual applicants to request funding for a collection of linked energy efficiency RD&D projects that address specific goals within a single proposal. This type of solicitation is intended to reduce duplication of effort and staff resources. The Energy Commission expects to award three separate programmatic contracts at funding levels of up to \$2 million each per year. The Notice of Proposed Awards is planned for release in early November 1999.

Also during this quarter, the Energy Commission entered into a membership with the Center for the Built Environment (CBE). This is an industry/university/public cooperative research center founded by the University of California, the National Science Foundation, and industry partners. The CBE focuses on buildings-related energy research that seeks to improve the design and operation of buildings, develop new technology, and better understand the human aspects of building energy use such as human response to lighting conditions, ventilation, and other factors affecting productivity and comfort. This membership will enable the Energy Commission to help steer the direction of research in this area and coordinate with other PIER-funded research, thereby maximizing the value to the PIER program.

(2) Industrial/Agriculture/Water Energy Efficiency

The Energy Commission approved an 18-month, \$1.8 million inter-agency agreement with the University of California, Davis (UC Davis). This agreement will fund UC Davis's proposed research to improve energy efficiency in the agricultural industry. Specifically, the focus of this research is to develop and demonstrate the following energy efficient technologies:

- Ozone as a disinfectant to replace toxic methyl bromide for soil fumigation
- State-of-the-art irrigation methods to maximize vineyard/orchard growth and yield
- Precision farming methods for optimizing site specific crops
- Integrated wastewater management system for dairy and livestock operations

UC Davis prepared this R&D proposal in association with the United States Department of Agriculture, the University of California (Riverside), Utility Technology Associates, Electric Power Research Institute, and Southern California Edison. These consortium members are providing \$2.1 million in matching funds.

Public benefits include potential energy savings of 2.4 billion kWh per year, safer and healthier work conditions for farm workers with the elimination of toxic methyl bromide usage by 2005, and improved competitiveness of California's agriculture industry (through safe and low-cost food for California).

(3) Renewable Generation

A Small Modular Biomass Competitive Negotiation Solicitation was approved and will take place during the fourth quarter. This solicitation will award a total of \$1 million to innovative projects that advance cost effective, safe, reliable, and environmentally sound renewable technologies in a competitive marketplace. This Request For Proposals will be released in late October 1999, and will be the first solicitation of the Fiscal Year 1999/2000 for the Renewable Generation program area. It will also be the competitive negotiation effort conducted under the PIER Program.

B. PIER Energy Innovations Small Grant Program

This particular PIER Program effort, administered by California State University Institute, provides a simplified funding-award process for proof of concept research projects proposed by small businesses, non-profits, academic institutions and individuals. The program provides PIER funding support for RD&D innovations that might otherwise not be successfully pursued. The maximum amount of any individual grant award is \$75,000.

Three solicitations have taken place during 1999. For the first solicitation round, the Energy Commission approved 13 projects totaling \$973,850 during the third quarter. These projects will start in October 1999.

The second solicitation s deadline was May 30, 1999. Fifty-four proposals were submitted, of which 27 passed the initial screening. At a meeting on September 20, 1999, the Program and Technical Review Board chose five projects to be recommended to the RD&D Committee for funding.

The third solicitation round closed on September 30, 1999. Projects from the third round are expected to be presented to the Energy Commission at the November 3rd Business Meeting.

V. OTHER PIER PROGRAM ACTIVITIES

Information Transfer/Reporting Activities

A major PIER-Sponsored Technology Forum (entitled *Energy Innovations '99: Sharing the Benefits of California's Research Investment*) will take place during October 25-27, 1999, in San Diego, California. This conference will highlight California's ratepayer-funded PIER Program and will facilitate the exchange of relevant information and ideas among researchers, technology users, and other interested parties from throughout the state, nation, and international community.

The PIER Program informational brochure was completed to provide an overview of the PIER-funded programs. This brochure will be available at public forums, including the upcoming *Energy Innovations '99* conference.

V. CONCLUSION

The Energy Commission remains fully committed to administering the PIER Program in an efficient and effective manner that ensures public input and accountability. The PIER section of the Energy Commission's Web Site can be accessed at:

<www.energy.ca.gov/research/PIER/index.html>

This Web Site is an effective means of communicating with stakeholders and the public regarding the PIER Program.

In summary, the Energy Commission continues to successfully develop and implement the PIER Program, in accordance with the directives contained in AB 1890 and SB 90. Should you have questions or comments, please feel free to contact Traci Stevens, Director of Governmental Affairs, at 654-4942.
